Trend Study 8A-4-00

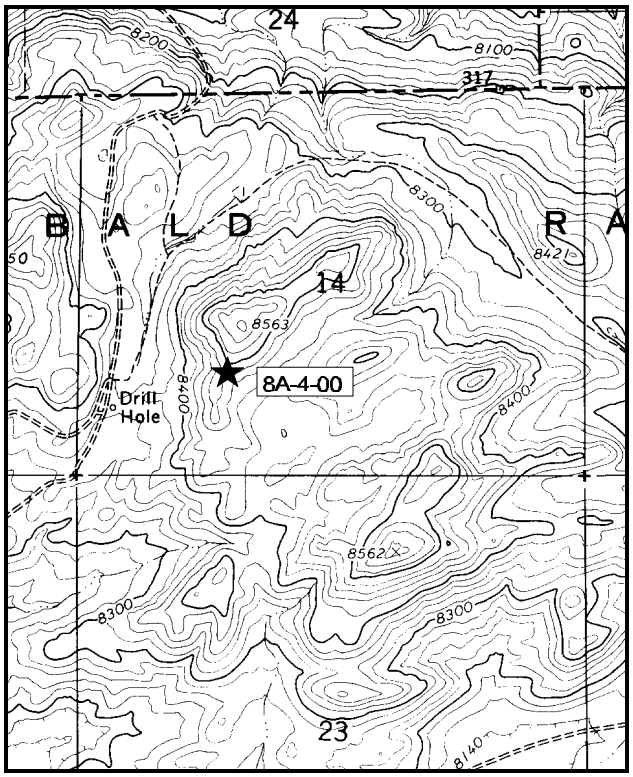
Study site name: Bald Range . Range type: True Mountain Mahogany .

Compass bearing: frequency baseline 158°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft.), line 4 (71ft).

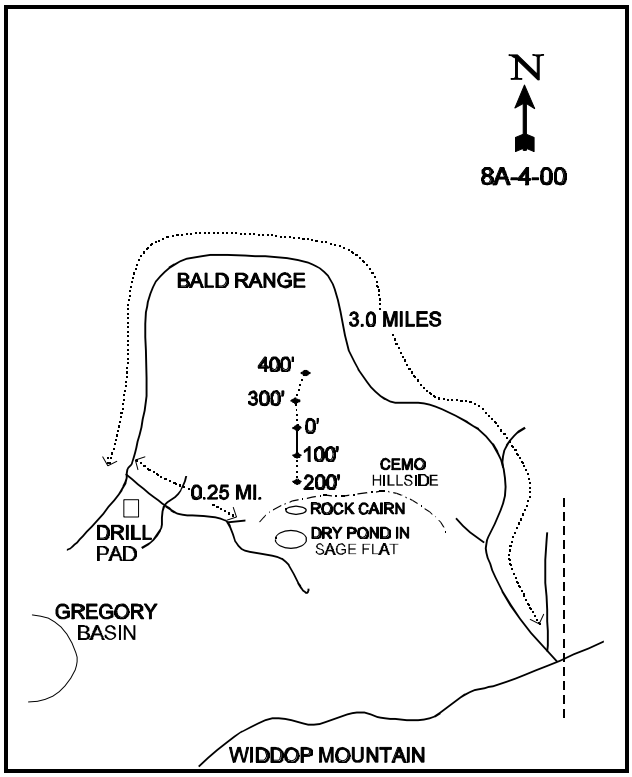
LOCATION DESCRIPTION

From the Hoop Lake-Beaver Creek Road, turn off east towards Gregory Basin. Go 0.6 miles to a gate onto private land. Continue past the cabins for 1.1 miles to a fence. Go along a canal 0.5 miles to the 4-way intersection. Proceed east 0.7 miles to a cattle guard at the boundary, and 0.9 miles more to the eastern FS boundary fence. Continue 1.8 miles to another fence. Just on the west side of the fence, make a 45° turn to the left and follow the jeep road NW up the drainage about 0.5 miles to a fork at the top. Continue on the main jeep road 2.55 miles to an old drill pad. Just past the pad, turn left onto a faint road that goes east about 0.25 miles to the top of a ridge. From the ridge, walk about 0.1 miles along the edge of the sage and mahogany to a rock cairn. From there it is 13 paces north to the 200 foot baseline stake. The 0-foot baseline stake is marked by browse tag #9076.



Map Name: Hoop Lake

Township 3N , Range 16E , Section 14



Diagrammatic Sketch

UTM 4537733 N, 575817 E

DISCUSSION

Trend Study No. 8A-4

The Bald Range trend study is located less than ½ mile northwest of the Bald Range South study (8A-3). It also samples a south-facing mountain mahogany slope. Due to the close proximity of these two sites, Bald Range South (8A-3) was dropped and Bald Range (8A-4) was retained. The Bald Range trend study is more representative of the area. At the time the study was established ('88), the area was exceptionally dry. Water often limits livestock grazing in the area. Cattle use this state land in the spring when the nearby stock ponds contain water. Elk sign is concentrated on the rocky, windswept ridges where they bed down. The mahogany type provides the bulk of the forage. There is little deer sign because the high elevation (8,470 feet) is not suited for deer winter range. Pellet group data from 2000 estimate 40 elk days use/acre (99 edu/ha). About 10% of the pellet groups encountered were from spring use with all of the others appearing to be from fall and winter. Antelope also use the area and some were seen near the site in 2000.

The slope is moderately steep at about 22%. The soil is moderately shallow and rocky with an effective rooting depth of just over 9 inches. It has a sandy loam texture with a slightly alkaline pH and a high percentage of rock and gravel on the surface and throughout the profile. A hard pan layer is found at 6" to 8" in depth. The surface soil is loose and easily disturbed. Trampling can have deleterious effects, with recurrent open interspaces that lack litter and vegetative cover displaying noticeable erosion. Phosphorus is limited at just 3.6 ppm. Values less than 10 ppm can limit normal plant growth and development.

True mountain mahogany is the key browse species. It provided 80% of the browse cover in 1995 and 82% in 2000. Population density was estimated at 5,599 plants/acre in 1988. Similar to other mahogany sites in the area, the proportion of young plants in the population was high in 1988 at 55%. Use was moderate to heavy. Density declined in 1995 due to a reduction in young plants, but use was more moderate and vigor normal on most plants. Changes in density are also likely due to the greatly enlarged sample size used in 1995 which more accurately estimates shrub populations. Density has remained stable in 2000 at 3,560 plants/acre. Use is heavy on 69% of the plants sampled. The population is healthy however, with young plants accounting for 21% of the population, vigor normal on most plants and percent decadence is relatively low at 7%. Some of the heavy use may be partly due to the poor leader growth in 2000. Average annual leader growth of mahogany was only 1.2 inches. This lack of leader growth often gives shrubs a heavily hedged growth form.

Other desirable browse are limited to a few scattered serviceberry, a moderate population of black sagebrush, and a small number of snowberry. The population of black sagebrush did not show much evidence of use in 1988, but did demonstrate more moderate use in 1995. Currently ('00) use is mostly light. The large increase in population density of black sagebrush between 1988 and 1995 is due to the much larger sample size in 1995. Broom snakeweed was very common in 1988 and appeared to be increasing. This short lived shrub declined considerably during the following drought years and now has a population density of only 800 plants/acre.

Grass composition is very similar to other mahogany sites on the unit. The dominant grasses include: bluebunch wheatgrass, a Carex, Indian ricegrass and thickspike wheatgrass. Nested frequency of bluebunch wheatgrass and Carex increased significantly between 1988 and 1995. Both of these species decreased in 2000 but the change was not significant. Indian ricegrass has significantly declined in nested frequency with each reading. Carex was heavily utilized in 2000. All the other grasses displayed poor seed production due to the dry conditions. Forbs are diverse but contain only a few useful species. The dominant forbs include low growing species like sulfur eriogonum, low penstemon and desert phlox. Many of the forbs encountered in 2000, were already dried up by August 1st due to the extremely dry conditions.

1995 TREND ASSESSMENT

Basic ground cover characteristics have improved slightly on the site. Protective ground cover has increased, although litter cover declined slightly which is typical for an extended drought. Trend for soil is considered stable. Trend for the key browse species, true mountain mahogany, is stable. Biotic potential (# seedlings) has increased while the number of young plants has declined. Young plants are still abundant and adequate to maintain the stand. The extremely high number of young plants sampled in 1988, appear to have established during the wet years of 1983-84. They are now declining in number with a return to drier conditions. The number of young in the population also may have been overestimated with the smaller sample size used in 1988. The number of decadent mahogany has declined from 18% to 1% with the proportion of shrubs displaying heavy use decreasing from 45% to 25%. The less preferred browse species, black sagebrush, displays a stable population trend. Another positive factor in the trend is the significant decline in the population of broom snakeweed. The herbaceous understory is very similar to other sites in the unit. Grass composition is good, while forbs contain several low growing weedy species. Sum of nested frequency for grasses increased slightly, while sum of nested frequency for perennial forbs declined. Combined sum of nested frequency for grasses and forbs declined slightly, but not enough to suggest a downward trend since the decline is due to forbs which provide only 26% of the total herbaceous cover. Trend for the herbaceous understory is considered stable.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3)

2000 TREND ASSESSMENT

Trend for soil is still considered stable. Percent bare ground has increased, but the ratio of protective ground cover to bare ground has remained similar to 1995. There is little erosion occurring on the site. Trend for the key browse species, true mountain mahogany, is stable. There is more heavy use, yet vigor is normal on most plants, percent decadence is low at only 7%, and young plants account for 21% of the population. Sum of nested frequency of perennial grasses declined slightly, while frequency of forbs remained stable. Nested frequency of thickspike wheatgrass increased significantly, with bluebunch wheatgrass and Carex declining slightly but not significantly. Sum of nested frequency for Indian ricegrass continued to decline significantly and is now found in only 3 quadrats. Desert phlox has remained stable while the preferred low penstemon declined significantly in nested frequency. Weighing all of these factors, trend for the herbaceous understory is considered down slightly.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - down slightly (2)

HERBACEOUS TRENDS --
Herd unit 08A, Study no: 4

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	a37	a50	b106	17	20	37	.44	1.18
G	Agropyron spicatum	a158	b217	ab187	64	80	69	3.98	6.72
G	Carex spp.	a94	b136	ab123	43	58	53	3.55	5.14
G	Koeleria cristata	b54	a22	a1	27	9	1	.22	.00
G	Leucopoa kingii	a-	a-	b9	-	-	4	-	.33
G	Oryzopsis hymenoides	c96	b65	a5	40	33	3	1.89	.18
G	Poa fendleriana	a-	b8	b13	-	4	5	.04	.36
G	Poa secunda	27	19	10	13	9	5	.17	.07
G	Stipa comata	b49	ab27	a19	23	13	8	.22	.96
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		515	544	473	227	226	185	10.53	14.98
Total for Grasses		515	544	473	227	226	185	10.53	14.98
F	Antennaria rosea	13	8	5	5	4	2	.21	.03
F	Arabis spp.	2	3	-	1	2	-	.01	-
F	Arenaria congesta	a-	a-	b14	-	-	6	-	.20
F	Astragalus spp.	a5	b51	a7	3	24	4	.64	.05
F	Calochortus nuttallii	-	1	-	-	1	-	.00	-
F	Chenopodium leptophyllum (a)	-	b10	a-	-	5	-	.05	-
F	Cirsium spp.	b26	ab12	a15	13	6	6	.11	.10
F	Cryptantha spp.	-	1	3	-	1	1	.03	.00
F	Descurainia pinnata (a)	-	b78	a-	-	31	-	.31	-
F	Eriogonum umbellatum	a-	b8	c61	-	3	25	.09	1.48
F	Haplopappus acaulis	a7	ab15	b24	3	7	12	.37	.57
F	Hackelia patens	a-	a-	b7	-	-	3	-	.33
F	Heterotheca villosa	-	-	1	-	-	1	-	.00
F	Hymenoxys acaulis	a-	b6	ab5	-	3	2	.04	.03
F	Hymenoxys richardsonii	-	-	3	-	-	1	-	.15
F	Ipomopsis aggregata	4	-	-	2	-	-	-	-
F	Lappula occidentalis (a)	-	1	-	-	1	-	.00	-
F	Lesquerella alpina	b45	c76	a5	23	37	3	.23	.01
F	Leucelene ericoides	-	1	1	-	1	1	.00	.00
F	Lepidium spp. (a)	-	3	-	-	1	-	.00	-
F	Lithospermum ruderale	a-	b6	ab2	-	3	1	.01	.03
F	Machaeranthera canescens	a-	a-	b8	-	-	4	-	.04
F	Machaeranthera grindelioides	6	6	10	3	4	4	.09	.09
F	Penstemon humilis	c150	b79	a37	71	41	18	.50	.31

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
F	Phlox hoodii	61	75	64	24	32	26	1.21	1.27
F	Phlox longifolia	$_{c}$77	$_{a}$-	$_{b}$28	32	-	10	-	.05
F	Senecio multilobatus	$_{a}$3	$_{a}$-	$_{b}$12	1	-	6	-	.03
F	Trifolium dasyphyllum	$_{b}$37	$_{a}$-	$_{b}$31	16	-	15	-	.61
F	Zigadenus paniculatus	$_{b}$65	$_{a}$31	$_{a}$18	32	17	9	.16	.21
Total for Annual Forbs		0	92	0	0	38	0	0.37	0
Total for Perennial Forbs		501	379	361	229	186	160	3.74	5.67
Total for Forbs		501	471	361	229	224	160	4.11	5.67

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 08A, Study no: 4

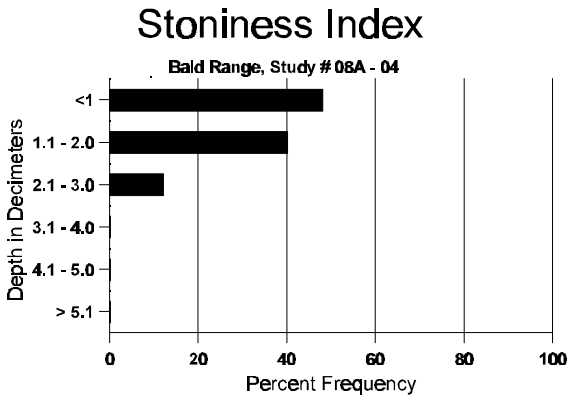
Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Amelanchier alnifolia	1	1	-	-
B	Artemisia frigida	3	0	.03	-
B	Artemisia nova	58	54	3.34	1.33
B	Cercocarpus montanus	82	79	21.40	16.20
B	Chrysothamnus viscidiflorus lanceolatus	27	33	.54	.80
B	Eriogonum microthecum	2	9	-	.06
B	Leptodactylon pungens	17	22	-	-
B	Pediocactus simpsonii	0	1	-	-
B	Gutierrezia sarothrae	0	1	.40	.10
B	Symphoricarpos oreophilus	23	20	.93	1.19
B	Tetradymia canescens	13	11	.18	.15
Total for Browse		226	231	26.84	19.86

BASIC COVER --
Herd unit 08A, Study no: 4

Cover Type	Nested Frequency		Average Cover %		
	'95	'00	'88	'95	'00
Vegetation	326	325	6.75	35.36	39.93
Rock	253	212	2.75	8.05	6.74
Pavement	291	301	27.50	15.50	16.87
Litter	385	362	46.00	39.70	36.90
Cryptogams	7	8	0	.21	.07
Bare Ground	281	294	17.00	13.14	22.08

SOIL ANALYSIS DATA --
Herd Unit 8A, Study # 4, Study Name: Bald Range

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
9.39	65.6 (11.10)	7.5	58.4	24.1	17.6	3.3	3.6	112.0	0.9



PELLET GROUP FREQUENCY --
Herd unit 08A, Study no: 4

Type	Quadrat Frequency	
	'95	'00
Rabbit	1	-
Elk	21	24
Deer	8	2
Cattle	2	1
Moose	-	-

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
'00	'00
-	-
522	40 (99)
-	-
26	2 (5)
44	3 (8)

BROWSE CHARACTERISTICS --
Herd unit 08A, Study no: 4

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	1	-	-	-	-	-	-	-	1	-	-	-	20	20	34	1
	00	-	1	-	-	-	-	-	-	-	-	-	1	-	20	31	62	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	
'95	100%	00%	00%	+ 0%
'00	100%	00%	100%	

Total Plants/Acre (excluding Dead & Seedlings)			
'88	0	Dec:	-
'95	20		-
'00	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia frigida																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66	1	5	1
	95	2	-	-	3	-	-	-	-	-	5	-	-	-	100	2	5	5
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	
'95	00%	00%	00%	+34%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'88	66	Dec:	-
'95	100		-
'00	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	00	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
Y	88	5	-	-	1	-	-	1	-	-	7	-	-	-	466			7
	95	1	1	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	11	-	-	-	-	-	-	-	-	11	-	-	-	220			11
M	88	3	-	-	-	-	-	-	-	-	3	-	-	-	200	9	8	3
	95	44	31	7	17	6	-	-	-	-	105	-	-	-	2100	8	14	105
	00	77	4	1	7	-	-	2	-	-	90	1	-	-	1820	6	12	91
D	88	3	-	-	-	-	-	-	-	-	3	-	-	-	200			3
	95	6	1	-	-	1	-	-	-	-	3	-	-	5	160			8
	00	13	2	-	-	-	-	-	-	-	10	-	-	5	300			15
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	100			5
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	120			6

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	+62%
'95	35%	06%	04%	+ 2%
'00	05%	.85%	04%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	866	Dec:		23%
'95	2300			7%
'00	2340			13%

Cercocarpus montanus																		
S	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	4	-	-	12	-	-	-	-	-	16	-	-	-	320			16
	00	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
Y	88	15	26	5	-	-	-	-	-	-	46	-	-	-	3066			46
	95	6	11	2	21	1	-	-	-	-	41	-	-	-	820			41
	00	13	9	16	-	-	-	-	-	-	38	-	-	-	760			38
M	88	-	4	19	-	-	-	-	-	-	23	-	-	-	1533	24	27	23
	95	-	9	1	-	77	38	-	-	-	97	4	24	-	2500	29	48	125
	00	-	15	82	1	9	20	-	-	-	121	3	3	-	2540	29	44	127
D	88	-	1	14	-	-	-	-	-	-	11	-	3	1	1000			15
	95	-	-	-	-	-	1	-	-	-	1	-	-	-	20			1
	00	2	1	3	-	5	2	-	-	-	8	-	4	1	260			13
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	37%	45%	05%	-40%
'95	59%	25%	14%	+ 6%
'00	22%	69%	04%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	5599	Dec:		18%
'95	3340			1%
'00	3560			7%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus lanceolatus																		
Y	88	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	88	4	-	-	-	-	-	1	-	-	5	-	-	-	333	7	10	5
	95	32	-	-	8	-	-	-	-	-	40	-	-	-	800	10	16	40
	00	45	2	-	3	-	-	-	-	-	46	-	4	-	1000	6	10	50
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	6	-	-	4	-	-	-	-	-	6	-	-	4	200			10

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	+17%
'95	00%	00%	00%	+34%
'00	03%	00%	13%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	666	Dec:		0%
'95	800			0%
'00	1220			16%

Eriogonum microthecum																		
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	1	-	-	-	-	-	2	-	-	-	40	8	14	2
	00	23	-	-	-	-	-	-	-	-	23	-	-	-	460	6	9	23

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	
'95	00%	00%	00%	+93%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'88	0	Dec:	-
'95	40		-
'00	600		-

Gutierrezia sarothrae																		
Y	88	32	-	-	-	-	-	-	-	-	32	-	-	-	2133			32
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	88	256	-	-	-	-	-	-	-	-	256	-	-	-	17066	6	6	256
	95	22	-	-	-	-	-	-	-	-	22	-	-	-	440	5	6	22
	00	38	-	-	1	-	-	-	-	-	37	-	2	-	780	5	6	39

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	-97%
'95	00%	00%	00%	+40%
'00	00%	00%	05%	

Total Plants/Acre (excluding Dead & Seedlings)			
'88	19199	Dec:	-
'95	480		-
'00	800		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Leptodactylon pungens																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
% Plants Showing		Moderate Use		Heavy Use		Poor Vigor									%Change			
	'88	00%		00%		00%												
	'95	00%		00%		00%												
	'00	00%		00%		00%												
Total Plants/Acre (excluding Dead & Seedlings)													'88		0	Dec:		-
													'95		0			-
													'00		20			-
Pediocactus simpsonii																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	1	2	1
% Plants Showing		Moderate Use		Heavy Use		Poor Vigor									%Change			
	'88	00%		00%		00%												
	'95	00%		00%		00%												
	'00	00%		00%		00%												
Total Plants/Acre (excluding Dead & Seedlings)													'88		0	Dec:		-
													'95		0			-
													'00		20			-
Symphoricarpos oreophilus																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	4	-	-	1	-	-	-	-	-	5	-	-	-	100			5
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	88	1	2	-	-	-	-	-	-	-	3	-	-	-	200	10	15	3
	95	13	-	2	9	1	1	-	-	-	26	-	-	-	520	9	24	26
	00	18	-	-	7	-	-	2	-	-	21	1	5	-	540	12	22	27
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	1	-	-	-	-	-	1	-	-	1	40			2
% Plants Showing		Moderate Use		Heavy Use		Poor Vigor									%Change			
	'88	67%		00%		00%									+68%			
	'95	03%		10%		00%									- 6%			
	'00	00%		00%		21%												
Total Plants/Acre (excluding Dead & Seedlings)													'88		200	Dec:		0%
													'95		620			0%
													'00		580			7%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Tetradymia canescens																		
Y	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	88	1	-	-	-	-	-	1	-	-	2	-	-	-	133	9	6	2
	95	12	1	-	2	-	-	-	-	-	15	-	-	-	300	6	9	15
	00	13	2	-	1	-	-	-	-	-	16	-	-	-	320	4	9	16
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	1	-	-	-	1	-	-	-	1	-	-	1	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	+34%
'95	07%	00%	00%	+21%
'00	16%	05%	05%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	199	Dec:		0%
'95	300			0%
'00	380			11%